

REMARKS

In response to the Office Action of November 24, 2004, Applicant respectfully requests reconsideration. Claims 1-4 were previously pending in this application. Claims 1, 3 and 4 have been amended. As a result, claims 1-4 are pending for examination with claims 1, 3 and 4 being independent. No new matter has been added. The application as presented is believed to be in condition for allowance.

It should be appreciated that the amendments to claims 1, 3 and 4 are made solely for the purpose of clarification and are not intended to alter the scope of the claims. Thus, these amendments raise no new issues that would require further search and/or consideration.

Telephone Interview With Examiner McCarthy

The undersigned appreciates the courtesies extended to him by Examiner McCarthy during the telephone interview of March 8, 2005. The substance of the telephone interview is summarized below.

Applicant's representatives and Examiner McCarthy discussed the final rejection of claims 1-13 under 35 U.S.C. §102(e) as purportedly being anticipated by Swoboda (U.S. Patent Application Publication No. US2002/0059541). The undersigned briefly summarized the device in Swoboda and the claimed invention.

The undersigned also pointed out that Swoboda illustrates a device that contains an external emulation controller which controlled by an on-chip digital processor. By contrast, the claimed invention includes an emulation device, which is completely on-chip, operable to control the on-chip digital processor. Examiner McCarthy expressed the view that the independent claims of the application in their current form did not clearly require an emulation device, which is completely on-chip, operable to control an on-chip digital processor. Examiner McCarthy stated that if the claims were clarified to clearly recite that the on-chip emulation device is contained entirely on-chip, then the claims would distinguish over Swoboda.

Rejections Under 35 U.S.C. §102

The Office Action has rejected claims 1-4 under 35 U.S.C. §102(e) as purportedly being anticipated by Swoboda (U.S. Patent Application Publication No. US2002/0059541). These rejections are respectfully traversed.

Swoboda discloses an off-chip emulation device which includes on-chip debug facilities ([0059], FIG. 1). The device disclosed by Swoboda offers both bi-directional and unique directional DSP target/host data transfers which are managed by emulation hardware located off-chip ([0039]). The emulation controller disclosed by Swoboda provides a bridge between the host computer and a target system handling all debugging information passed between the debugger application running on the host computer and a target application ([0069]). The off-chip emulation controller also provides debug control ([0080]).

Amended claim 1 is directed towards a debugging system comprising a host computer system and a target device. The target device having an embedded digital processor on an integrated circuit chip and an on-chip emulation device, wherein the on-chip emulation device is contained entirely on-chip, coupled to the digital processor. The on-chip emulation device being operable to control the digital processor and to collect information about the operation of the digital processor. The on-chip emulation device also comprises a communication port operable to receive information from and emit information to the host computer system, wherein the debugging system further comprises an interface on the integrated circuit chip having a first port connected to the communication port of the on-chip emulation device and a second port connected to a universal serial bus. The host computer system comprising a universal serial bus port connected to the universal serial bus, wherein the host computer system further comprises a proxy server program for managing the universal serial bus port to enable communication over said universal serial bus. The host computer further comprises application software in use with communicating with the proxy server program and hence via the universal serial bus, with the embedded digital processor.

Claim 1 clearly distinguishes over Swoboda. Claim 1 requires an on-chip emulation device being operable to *control* the digital processor. Swoboda does not teach an on-chip emulation device which is operable to control a digital processor. Swoboda instead teaches on-

chip debug facilities controlled by an external emulation device ([0061], [0069]). Therefore, Swoboda fails to teach an on-chip emulation device being operable to control a digital processor, which is required by claim 1. Thus, claim 1 patentably distinguishes over Swoboda such that the rejection of claim 1, as well as claim 2 which depends therefrom, under §102(e) is improper and should be withdrawn.

Amended claim 3 is directed towards a method of debugging an integrated circuit chip by communicating between application programs running on a host computer system and a device on the integrated circuit chip. The chip comprising digital processing circuitry and on-chip emulation circuitry, wherein the on-chip emulation circuitry is contained entirely on-chip, for communicating with and control of the digital processing circuitry. The on-chip emulation circuitry having a communications port for receiving information from the host computer system and for passing information to the host computer system. The integrated circuit chip further having an on-chip usb interface connected to a target usb port, and the host computer system having a host usb port. The method comprising, converting the host usb port to the target usb port, running a proxy server program on the host computer system, and causing the application program to connect to the proxy server program. Whereby the proxy server program connects to the device on the chip via the host and target usb ports.

As should be appreciated from this discussion above relating to claim 1, Swoboda does not teach on-chip emulation circuitry for control of a digital processing circuitry. Therefore, claim 3 patentably distinguishes over Swoboda, such that the rejection of claim 3 under §102(e) is improper and should be withdrawn.

Amended claim 4 is directed towards a method of operating an integrated circuit chip having digital processing circuitry and on-chip emulation circuitry, wherein the on-chip emulation circuitry is contained entirely on-chip, for communicating with, and control of said digital processing circuitry. The on-chip emulation circuitry having a communications port for receiving information from a remote computer system and for passing information to the remote computer system. The integrated circuit chip further having an on-chip usb interface connected to a usb port. The method comprising converting the usb port to the usb port of a host computer, wherein said host computer is capable of Internet connection, running a proxy server process on

said host computer, generating a remote procedure call in the chip, transferring the remote procedure call via the usb to said proxy server process, converting the remote procedure call to a socket call, and thereby communicating between said chip and the Internet.

As should be appreciated from the discussion above relating to claim 1, Swoboda does not teach on-chip emulation circuitry for control of said digital processing circuitry. Therefore, claim 4 patentably distinguishes over Swoboda, such that the rejection of claim 4 under §102(e) is improper and should be withdrawn.

Serial No.: 09/981,624
Conf. No.: 7265

- 8 -

Art Unit: 2113

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,

Anthony DEBLING, Applicant

By: 

James H. Morris, Reg. No. 34,681
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, Massachusetts 02210-2206
Telephone: (617) 646-8000

Docket No.: S1022.80760US00
Date: March 18, 2005

x03/24/05x